Title (en)

Multijunction solar cell

Title (de)

Mehrfach-Solarzelle

Title (fr)

Cellule solaire à jonctions multiples

Publication

EP 2919276 B1 20190710 (DE)

Application

EP 14000912 A 20140313

Priority

EP 14000912 A 20140313

Abstract (en)

[origin: WO2015135623A1] The invention relates to a multi solar cell having a first sub-cell made of a compound of InGaAs, said first sub-cell having a first lattice constant, and a second sub-cell having a second lattice constant. The first lattice constant is greater than the second lattice constant by at least 0.008 Å. Additionally, a metamorphic buffer is provided. The buffer is formed between the first sub-cell and the second sub-cell, and the metamorphic buffer has a sequence of at least three layers, the lattice constant increasing in the sequence from layer to layer in the direction of the first sub-cell. The lattice constants of the layers of the buffer are greater than the second lattice constant, and a layer of the metamorphic buffer has a third lattice constant, said third lattice constant being greater than the first lattice constant. A number N of compensation layers are formed between the metamorphic buffer and the first sub-cell in order to compensate for the residual tension of the metamorphic buffer, and the lattice constant of each compensation layer is smaller than the first lattice constant by a total of ΔAN >0,0008 Å. The compensation layers have an indium content of more than 1%, and the thickness of the number N of the compensation layers is selected such that formula (I) applies.

IPC 8 full level

H01L 21/18 (2006.01); **H01L 31/0304** (2006.01); **H01L 31/0687** (2012.01)

CPC (source: EP RU US)

H01L 21/187 (2013.01 - EP US); **H01L 31/028** (2013.01 - US); **H01L 31/03046** (2013.01 - EP US); **H01L 31/0547** (2014.12 - US); **H01L 31/0687** (2013.01 - EP US); **H01L 31/06875** (2013.01 - EP US); H01L 31/0687 (2013.01 - RU); Y02E 10/52 (2013.01 - EP US); Y02E 10/544 (2013.01 - EP US); Y02E 10/547 (2013.01 - EP); Y02P 70/50 (2015.11 - EP US)

Citation (examination)

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DOCDB simple family (publication)

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DOCDB simple family (application)

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